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OF MALE BENEFICIARIES ASSIGNED TO THE NATIONAL CAPITAL AREA
REGARDING PARTICIPATION IN PROSTATE SCREENING”

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ABSTRACT

The purpose of this study was to describe the knowledge base, perceived threats, benefits, barriers, and self-efficacy of prostate cancer screening. The Health Belief Model (HBM) was the theoretical framework that guided this study. This study utilized a convenience sampling of 234 males in the National Capital Area. A 58-item EPPS (Edwards Prostate Cancer Perception Screening Instrument) questionnaire was distributed to all interested participants. The study used both inferential and descriptive statistics to report findings. The majority (93%) of the participants were very knowledgeable about prostate cancer and prostate cancer screening as indicated by high scores on the knowledge scales. However, the majority of the study population appeared to be unsure of when to start screening for prostate cancer. All concepts of the HBM (perceived threats, benefits, barriers, and self-efficacy) appear to affect screening patterns as indicated by high mean scores on the perception scales. The majority (89%) of the participants were very trusting of their health care provider. They also reported obtaining most of the information about their health care from their provider. Two thirds of the participants reported screening annually for prostate cancer. Significant differences were noted in the screening pattern between Caucasian and the African American groups ($p = .001$). Contrary to previous studies, this study found that African American males screened for prostate cancer more frequently than Caucasian males. The information gained in this study can be helpful in providing guidance to the researchers in developing educational programs to encourage regular participation in prostate cancer screening.

ASSESSING THE KNOWLEDGE, SELF-EFFICACY AND HEALTH BEHAVIORS
OF MALE BENEFICIARIES ASSIGNED TO THE NATIONAL
CAPITAL AREA REGARDING PARTICIPATION
IN PROSTATE SCREENING

by

Angelo Dewitt Moore, CPT, USA & Gerald Boyle, LCDR, USN

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PREFACE

This study was conducted to describe the knowledge base, perceived threats, benefits, barriers, and self-efficacy of prostate cancer screening behaviors of male beneficiaries in the National Capital Area (NCA). This study also evaluated and described differences in prostate cancer screening practices that exist between racial groups. This study was designed in hopes of identifying information that can be used to assist and guide the implementation of educational programs to encourage and improve prostate screening practices.

DEDICATION

Angelo would like to dedicate the creation of this thesis to his wife LeeAntoinette, and children Juliesa, Lewis, and Lauren. Without God and their love, encouragement, sacrifice, and support the attainment of a dream and creation of this thesis would not have been possible.

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CHAPTER I: INTRODUCTION

Background

Prostate cancer is the second leading cause of death in men in the United States, second only to lung cancer (American Cancer Society [ACS], 2002). If detected early, while the tumor is still confined to the prostate, the five-year survival rate is 90% compared to 35% for a more advanced disease (Weinrich, et al., 1998). Early detection is a key factor in the reduction of morbidity and mortality associated with prostate cancer. The ACS recommends a digital rectal exam (DRE) and prostate specific antigen (PSA) test annually starting at 40 years of age for the most at risk group. At risks groups include African American men (AAM) and first-degree relatives of any race diagnosed with prostate cancer before the age of 50. All others should be screened annually starting at 50 years of age (ACS, 1999).

African American men (AAM) have a higher incidence of prostate cancer than their Caucasian counterparts (Abbott, Taylor & Barber, 1998). Prostate cancer presents earlier and more aggressively, and consequently, AAM have a poorer prognosis because their disease is more advanced at the time of detection (Weinrich, et. al., 1998). A number of studies comparing screening practices of AAM and Caucasian men in a civilian environment have been conducted; however, to date, no studies have been published comparing screening practices of both races in a military setting.

Prostate cancer is a hormone sensitive tumor, which usually grows slowly over ten to fifteen years. It is believed that testosterone stimulates tumor growth, but the specific cause of this disease is unknown. Some risk factors associated with prostate cancer have been identified however; there is most likely a genetic factor. Age is a significant risk

factor; according to the ACS, eighty percent of all prostate cancer is diagnosed in men over the age of 65. Other studies have linked consumption of certain foods to an increased incidence of prostate cancer. Men who eat a high-fat diet tend to eat fewer fruits and vegetables, which appears to contribute to an increased risk. Other researchers suggest that a diet high in calcium and low in fructose might increase the risk of developing prostate cancer (ACS, 1999).

Some occupational hazards have been linked to the etiology of prostate cancer as well. Men who work in rubber factories, or have increased exposure to certain chemicals like pesticides or cadmium, are at a greater risk of developing this disease. Lycopene, which is a natural substance that gives tomatoes and other vegetables their red color, has been linked to reducing the risk of cancer. Although prostate cancer is more common in North America and northwestern Europe, it is less common in Asia, Africa, Central America, and South America (ACS, 1999). It is postulated that this reduction is related to dietary practices. Prostate cancer is far less common in countries with a low fat diet; however, when men from these countries immigrate to the West, their risk of developing prostate cancer increases. This increase may be related to the consumption of a high fat diet (ACS, 1999).

The ability to understand and predict health behaviors can facilitate the development of educational programs aimed at preventing illness and promoting wellness. The rising cost of health care has led to a change in the delivery of care within the Military Health Care System (MHS). The MHS is now adopting a managed care approach to the delivery of health care, moving from intervention to prevention. One of the tenets of managed care is population health management. Adequate management of the male beneficiaries

of the National Capital Area (NCA) requires a reduction in the morbidity and mortality as it relates to prostate cancer. There are approximately 1 million male beneficiaries in the NCA of various races and ethnicities, and the incidence of prostate cancer varies by group. The incidence of prostate cancer is highest in African American at 53.1 per 100,000. The rates are lower for Caucasian at 22.4 per 100,000 and lower still for Hispanic and Asian Pacific Islander at 15.9 and 9.8 per 100,000 (ACS, 2002).

There is a need to develop strategies to increase the participation in health promotion behaviors and cancer screening activities among all men, but particularly for those in the high-risk group. Enhancing primary care providers' understanding of factors that affect screening patterns may facilitate their development of educational programs. These educational programs could increase early detection, and may have an impact on prostate cancer patient's survival and quality of life.

Purpose

The purpose of this study was to describe the knowledge base, perceived threats, benefits, barriers, and self-efficacy of prostate cancer screening behaviors of male beneficiaries in the NCA. This study also evaluated and described differences in prostate cancer screening practices that exist between racial groups in the study populations. Finally, this study identified information that can be used to assist and guide the implementation of educational programs to encourage and improve prostate screening practices.

Research Questions

Research questions for the population of male beneficiaries in the NCA were as follows:

- 1) What is known about prostate cancer and prostate screening?
- 2) What are the perceived threats concerning screening for prostate cancer?
- 3) What are the perceived benefits of a rectal exam as part of the screening for prostate cancer?
- 4) What are the perceived benefits of the PSA test in early detection of prostate cancer?
- 5) What are the perceived barriers to screening for prostate cancer?
- 6) What is their self-efficacy regarding screening for prostate cancer?
- 7) Are there any differences among racial groups (AAM, Caucasian, Hispanic, and Asian) in prostate cancer screening practices?

Hypothesis

There are no significant differences among racial groups in prostate cancer screening practices.

Theoretical Framework

The Health Belief Model (HBM) has been used to explain, understand, and predict behaviors of people related to their preventive health practices and thus was a suitable model to use in this study. Hochbaum, Leventhal, Kegeles, and Rosenstock developed the HBM during the 1950s (Brown, 1999). The original concepts of the HBM included perceived susceptibility, perceived seriousness, perceived benefits, and perceived barriers.

Perceived severity focuses on the feelings concerning the seriousness of contracting an illness versus leaving it untreated. Perceived susceptibility and seriousness are related to

an individual's knowledge of a health condition, which along with other modifying factors such as age, ethnicity, and socioeconomic status lead to a cue for action. An individual would carry out this action as long as the perceived benefit outweigh any barriers of this action (Champion & Scott, 1997). The combination of perceived susceptibility and perceived severity were labeled perceived threats. Perceived benefits focus on the effectiveness of a specific behavior to help reduce the threat of that condition, and barriers focus on the negative aspects of that behavior. The HBM postulates that individuals are more likely to carry out a related behavior if they believe that they are susceptible to that particular health condition, especially if that condition is serious (Jane Lu, 1995).

Rosenstock, Strecher, and Becker (1988) added the self-efficacy to the HBM, which was based on Bandura's Social Learning Theory. This theory suggests that an individual would more likely engage in a behavior that would result in a desirable outcome if the individual could execute the task (Champion 1995). Thus, the term self-efficacy was added as one of the concepts of the HBM. Self-efficacy increased the explanatory power of the model. The HBM was selected for this study because its constructs suggest that preventive health behavior is a function of perceived severity of illness, perceived susceptibility to that illness, perceived benefits for taking an action to prevent that illness and perceived barriers to engaging in that action (Rosenstock 1978).

Theoretical and Operational Definitions

Assessing the manner in which individuals conceptualize themselves and their health status is crucial when developing strategies to help promote healthy lifestyle choices (Hendricks, 1998). The HBM has frequently been applied to breast cancer screening

(Champion & Scott, 1997). It postulates that the behaviors of breast cancer screening are the result of decision-making based on perceived threats, benefits and barriers to actions. Perceived susceptibility and seriousness are related to the individual knowledge of the disease and its risk factors (Champion & Scott, 1997). Furthermore, behaviors are also a result of the beliefs that certain activities will benefit the individual, and these benefits will outweigh any barriers (Champion & Scott, 1997).

Listed below are theoretical and proposed operational definitions that guided the study.

- Perceived susceptibility was theoretically defined as “the individual’s subjective perception of one risk of contracting a health condition” (Strecher & Rosenstock, 1977, p 44). Perceived susceptibility was operationally defined as the subjective risk of personally developing prostate cancer.
- Perceived severity was theoretically defined as “an individual feeling concerning the seriousness of contracting an illness or leaving it untreated” (Strecher & Rosenstock, 1977, p 44). Perceived severity was operationally defined, as the subject’s opinions on how serious is prostate cancer and the risk of personally developing prostate cancer. Perceived threat was the combination of perceived susceptibility and severity. This attribute was operationally measured with Questions 13, 14, 15 and 16 of the perception scale (Appendix A).
- Perceived benefit was theoretically defined as “the efficacy of the advised actions to reduce the risk or seriousness of the impact” (Strecher & Rosenstock, 1977). Perceived benefit was operationally defined as the subject's perception about the efficacy of the PSA blood test and the DRE. One of the perceived benefits could be

early detection, which may decrease mortality and morbidity. This study had two benefit scales that were: benefit of the PSA and benefit of the rectal exam. The benefit of the rectal exam was measured operationally on the perception scale with Questions 18, 24, 26, and 27. The benefit of the PSA was operationally measured on the perception scale using Questions 17, 20, 23, 25 and 28. (Appendix A).

- Perceived barrier was theoretically defined “as the potentially negative aspects of a particular health action that may act as impediments to undertaking of the recommended behavior” (Strecher & Rosenstock, 1977). A perceived barrier was operationally defined as a negative perception towards screening for prostate cancer with the PSA and DRE. Perceived barriers were measured operationally using Questions 31, 32, and 33 of the perception scales (Appendix A).
- Self-efficacy was theoretically defined as “one’s confidence in his ability to take an action” (Strecher & Rosenstock, 1977). Self-efficacy takes into consideration one’s cognitive and motivational ability, and one’s mood or affect. Self-efficacy was operationally defined by the subject's responses pertaining to their confidence to participate in prostate cancer screening using the PSA blood test and DRE. Self-efficacy was operationally measured by Questions 19, 21, and 22 of the perception scales (Appendix A).
- Knowledge was theoretically defined as “a modifying factor believed to have an indirect effect on behavior by influencing the perception of susceptibility, severity, benefits, and barriers” (Strecher & Rosenstock, 1977). Knowledge was operationally defined by the study participant’s understanding about prostate cancer and prostate cancer screening with the correct responses to questions on the knowledge scale.

Knowledge was operationally measured on the knowledge scale using Questions 1-12 in Part A of the questionnaire (Appendix A).

Assumptions and Limitations

This study had several limitations. First, the theoretical framework postulates that health beliefs influence health behaviors. However, there are other factors that can also influence health behavior practices, including knowledge, culture, socioeconomic status, and previous experiences. Although, knowledge, cultural factors, and socioeconomic status were included in the research tool, the tool did not inquire about experiences. The study utilized a convenience sample, but multiple sites (Army, Navy, and Air Force) in the NCA were used to enhance adequate representation of the population. Incomplete or improperly filled out questionnaires as well as inadequate sample size may impact whether or not there is sufficient power to actually determine statistical significance. There was no way to determine if participants filled out the questionnaire with complete accuracy. Finally, the study findings cannot be generalized beyond the NCA.

Summary

The purpose of this study was to describe the health behavior of the male beneficiaries in the NCA in regards to prostate cancer screening. Assessing one's health beliefs can help explain why individuals participate in screening programs. The assessment of current prostate cancer screening practices is the first step in developing new strategies to increase participation in health promotional activities.

CHAPTER II: LITERATURE REVIEW

Introduction

The Health Belief Model (HBM) has been the theoretical model used in many research projects, particularly those projects that focus on explaining health related behaviors. The main variables of this model include: perceived susceptibility, severity, threats, benefits, and barriers. The model also includes cues for actions and health motivation. The HBM is partly based on a value expectancy theory. This in part states that people have a desire to stay healthy and avoid illness (value). If individuals perceive themselves to be susceptible to any illness and perceive that illness to be severe, they are more likely to participate in activities that would prevent or ameliorate this illness (expectancy). The majority of previous studies used the HBM to address issues related to screening and compliance. In 1977, the concept of self-efficacy was added to help increase the explanatory power of the model (Rosenstock, Strecher, & Becker, 1998). Bandura defined self-efficacy as the conviction that an individual will successfully execute a certain behavior in order to produce a particular outcome. Self-efficacy helped to strengthen the ability of the model to predict, explain, and influence health related behaviors (Rosenstock, et. al., 1998).

The HBM has generated more research than any other theoretical model and is the leading framework used in research to explain and predict acceptance of health and medical care recommendations (Janz & Becker, 1984). This literature review first focused on studies in which HBM was used as the theoretical or conceptual framework for the study. Studies that used other factors such as knowledge to evaluate participation in prostate cancer screening were also reviewed. These studies were critiqued, results

presented, and their limitations discussed. Most of this literature review focused on AAM and Caucasian males screening practices. Very few studies compared screening practices of AAM, Caucasian, Hispanic, and Asian racial groups.

Studies Using the Health Belief Model

Womeodu and Bailey (1996) utilized the HBM to examine barriers to cancer screening. The barriers included individual (or patient), health care-provider, medical system, ethnic minorities, and elderly. Individual or patient barriers included non-adherence, perceived susceptibility of disease, health beliefs and practices, lack of knowledge, socio-economic factors, and miscommunication. Results indicated that cancer screening should focus on asymptomatic individuals and to do this, it would be necessary to focus on changing the attitudes of individuals without symptoms.

The overall results of the study indicated that, although barriers such as ethnic minorities and the elderly were documented, the primary responsibility for change rests with health care providers and the health care delivery system. The authors listed a series of suggestions to improve the adherence to cancer screening recommendations. These suggestions included providing information about cancer and screening, community outreach and active recruitment of participants, modifying screening experience, health attitudes, and beliefs. Other suggestions included influencing provider-patient relationships, utilizing all members of the health care team through multidisciplinary treatment teams, providing family and social support, conducting mail and telephone follow-up, and utilizing appointment reminders.

It is essential that health care providers address these barriers and implement a means to overcome such issues. Information from this study can be utilized to improve breast

cancer screening rates by attempting to eliminate barriers, thereby promoting health care. Further research is needed to determine the importance of managed care penetration and payer status on screening efforts. Womeodu and Bailey (1996) suggested measures be implemented to reward institutions for developing standards and procedures for cancer screening.

Million-Underwood and Saunders (1990) in their descriptive study, looked at factors contributing to the health promotion behavior of AAM. The focal point of the study examined the health promotion behaviors that lead to the reduction of cancer risk factors and early detection. The HBM was adopted as the conceptual framework in order to fully examine the relationship between the knowledge, attitude, perceptions, and health promotion behaviors. The purpose of the study was to determine the relationship between the knowledge of the incidence, warning signs and risk factors of cancers, and the health promotion behaviors of AAM.

The study described how perceived seriousness, susceptibility, and value of early detection of cancer predicted the participation of AAM in health promotion behaviors. Finally, the study described the attitude about cancer that predicts the health promotion behaviors of AAM. The study utilized a convenience sample of 177 AAM who resided in the Chicago metropolitan community. The researcher distributed a four-part questionnaire that determined participants' cancer related knowledge, perceptions, and attitudes as well as their cancer reduction practices. The study findings revealed that 78% of the participants were unable to identify any of the seven most common warning signs of cancer. The results of this study suggested that attitude, related to the efficacy of screening, was the variable most predictive of health promoting behaviors. Thirty four

percent of the variance of the health promoting behaviors was explained by this component of attitude. When perceived seriousness of cancer and knowledge of early warning signs of cancer was added to the equation, an additional 10% of the variance was explained.

Price, Colvin, and Smith (1993) evaluated black adult males' knowledge and perception of prostate cancer, utilizing the HBM as its theoretical framework. Five hundred surveys were distributed to AAM in seven large cities in Ohio, and 50% were used for data analysis. The findings of the study indicated that the subjects in the highest income level had most knowledge about prostate cancer. A lower income group reported a greater number of barriers to obtaining a prostate examination. A majority of the sample population agreed with the efficacy of prostate examination. Over 66% of the men surveyed stated they would seek attention if they perceived the disease as a serious problem, believed they were susceptible, and saw a benefit to seeking attention. However, two-thirds of the sample did not believe they were susceptible to prostate cancer.

A comparison study of prostate cancer (PC) knowledge looked at participation in community screening programs by Abbott, et al. (1998). The study consisted of 944 low-income men, focusing on the population's knowledge of PC. Each study participant was given a pre-test prior to participating in a community based screening program. This 10-item questionnaire focused on cause, risk factors, and clinical factors of prostate cancer. After taking the pre-test, the study participants were educated about prostate cancer by a clinical nurse specialist, and a post-test was administered after the clients completed their prostate screening.

The most significant finding of the study ($p < .001$) was the difference noted between the racial groups on early clinical presentation. The study indicated that AAM were less likely to identify early symptoms of PC, believing that pain was an early symptom of the disease. There were significant increases of both racial groups' knowledge base after the educational intervention as indicated by the post-test results. However, the African American group was still unable to identify the fact that pain was not an early sign of prostate cancer.

Another study focusing on health status, access to care, prior screening behaviors, knowledge and beliefs about prostate cancer, and demographic characteristics was conducted by Demark-Wahnefried et al. (1995). The study enrolled 1,504 subjects. It looked at the reasons men participated in prostate cancer screening. The majority of the participants verbalized that they participated in screening program for the peace of mind it offered. They also said that they visited their health care provider only when necessary. African American participants, however, were less educated overall than their Caucasian counterparts and were less likely to visit their health care provider on a regular basis for prostate screening. This study also identified some differences among the groups. It indicated that AAM were more likely to have a negative perception of prostate cancer and were less likely to identify their race as a risk factor ($p < 0.001$). They found that over half of the AAM in the study were more likely to agree that PC can present without symptoms as compared to three fourths of Caucasian men ($p < 0.001$). They also pointed out that health care providers could be a factor in influencing whether a patient participates in screening program.

A study conducted by Conlisk, Lengerich, Denmark-Wahnefried, Schildkraut, and Aldrich (1999) utilized a convenience sample of 231 participants to compare AAM with Caucasians males in demographic characteristics, screening behaviors, knowledge, and beliefs associated with staging of PC at diagnosis. The study indicated that the progression of the disease was strongly associated with health insurance status among black men. Fifty percent of those men with distant disease had health insurance as opposed to 100% of men with local disease ($p = 0.001$). This was one of the most significant findings of the study. AAM with distant metastasis were less likely to have DRE or believe that PC could be cured if detected early ($p = 0.001$). Both groups were aware that older men were at an increased risk for PC except for the AAM in the distant disease stage. Generally, Caucasian men had a greater knowledge of family history as a known risk factor for prostate cancer.

Edwards (2000) identified, described, and classified Africa-American men in a military setting. The study classified the study participants as frequent screeners, infrequent screeners, and non-screeners. The HBM and Arthur Kleinman's Model of the Health care System were utilized to guide the study. One hundred and forty-seven AAM participated in this study completing the EPPS (Edwards Prostate Cancer Perception Screening Instrument) questionnaire. The results of this study indicated that the majority of the participants had an overall good to excellent perception of health. The majority (88%) of the participants correctly responded to six or more questions on the knowledge scales. Eighty five percent of the men reported that they had screened for prostate cancer.

Perceived benefits of the PSA and DRE, and perceived threats along with age and education were statistically related to screening practices among the men ($p < .05$). This

study also indicated that significant factors that influenced screening were educating the men on the benefits and efficacy of the PSA and DRE. This study also evaluated participation in other preventative health behaviors such as cholesterol screening, blood pressure measurements, and dental exams. Over 85% of these men participated in these activities; however, only 54% of the men had been screened for colorectal cancer. This study could not be generalized to the entire military population since it only focused on AAM

A study conducted by Price, Calvin, and Smith (1993) evaluated black adult males' knowledge and perceptions of prostate cancer. Five hundred surveys were sent to AAM in seven large cities in Ohio. Sixty-four percent of the sample population responded (n=321). However, only 290 of the surveys were used in the data analysis. The study findings indicated that the subjects in the high-income bracket were very knowledgeable about prostate cancer, while the participants in the lowest income bracket were not as knowledgeable. Older subjects were more likely to seek medical attention if they experienced any one of the signs and symptoms of prostate cancer (cues to action), although age had no effect on perceived severity for prostate cancer. The subjects in the lower educational and income levels perceived prostate cancer as very severe.

Study participants also reported a greater number of barriers to obtaining a prostate examination. A majority of the sample population agreed with the efficacy of prostate examinations. Two-thirds of the sample either were not sure or did not believe that they were susceptible to prostate cancer, or they were unaware of the potential dangers of prostate cancer. The study had a number of limitations. It did not include all of the constructs of the HBM; health motivation was not included because of space constraints.

Finally, the survey was written at a 7-8th grade reading level, but some participants in the study only completed the sixth grade.

One of the constructs (Cues to Action) of the HBM was utilized to evaluate the impact of an educational program on participation in prostate screening provided by churches (Wienrich, et al., 1998). This descriptive correlational study attempted to predict the number of men that would attend the educational program based on the individual or church cues for action. The researcher employed several strategies to encourage participation in these educational programs. This study did not evaluate the effectiveness of the educational program; rather, it focused on the number of men that would attend. Over five hundred men attended the prostate cancer educational classes at 55 different churches. The sample population consisted of both AAM and Caucasian men. All participants completed a questionnaire and were given a voucher to take to a doctor of their choice for a free prostate cancer examination.

This study suggested that churches where the congregation had a death of a member within one year, a member of the congregation was diagnosed with cancer, or an educational programs about cancer had been given in the past year, had the highest number of participants in prostate cancer screening. Seventy one percent of the men that attended the educational program had a follow up prostate cancer exam with their physician. This study did not address perceived benefits and barriers, which have the strongest correlation in predicting compliance (Champion, 1995).

Perceived benefits and demographic factors as predictors for participation in free prostate cancer screenings were studied by Tingen, Weinrich, Heydt, Boyd, and Weinrich (1998). This descriptive correlational study randomly selected 1,526 men from 11

counties in a southern state. The ages of study participants ranged from 40 to 70. Seventy percent of the study's population was African American. A main inclusion criterion of the study was that none of the participants could have had a prior history or current participation in an evaluation for prostate cancer. All of the subjects were asked to complete a questionnaire that measured demographic data and perceived benefits. After completion of the questionnaire, the participants were provided with an educational class on prostate cancer and a voucher to have a free prostate cancer-screening visit. Two thirds of the sample, over a thousand men, participated in the free screening clinic.

This study suggests that the benefits scale and demographic variables predicted participation in screening. All items related to perceived benefits were found significant. The seven items on the benefits scale were also found to be significant in predicting participation in the prostate cancer screening. In addition, Caucasian men were found more likely than AAM to participate in prostate screening. Finally, education was shown to predict screening participation. The higher the subjects' level of education, the more likely they were to participate in prostate cancer screening. This study may not be generalizable to the total population of men since the participants were from a southern state and a majority were African Americans.

A study conducted by Gelfand, Parzuchowski, Cort, and Powell (1995) explored the attitudes of AAM toward digital rectal examinations (DRE) and prostate cancer screening. Six hundred and thirteen AAM between the ages of 40 and 70 years were asked to complete a survey after registering for a prostate-screening program. This self-administered questionnaire was used to determine positive or negative feelings the subjects had towards DRE and prostate screening. The study findings indicated that 60%

of the respondents had a positive attitude toward DRE being performed on them, 9% had a negative attitude towards the DRE, and 31% had no opinion. Those participants who expressed a negative attitude towards DRE also had a fear of cancer.

A study conducted by Myers, et al., (1996) investigated the factors associated with the intention to undergo annual prostate cancer screening in AAM. The participants, men ages 40-70 years, were selected from a large primary care practice in Philadelphia (n=218), and interviewed over the telephone. Seventy-one percent (n=154) of the subjects completed the survey. The preventive health model, a self-regulating, explanatory framework based on the HBM, was used to guide the research. The study's findings indicated that two thirds of the respondents perceived the risk of prostate cancer among AAM, to be high while only one third of those surveyed believed that they were at personal risk for prostate cancer. Of those surveyed, more than half believed strongly in the efficacy of screening for prostate cancer. Physical discomfort, embarrassment, and financial cost were potential barriers for 43% of the respondents. Fear of abnormal results was a major concern and barrier to 63% of those surveyed. Half of the respondents reported that they felt their health care providers supported prostate cancer screening, but only one third indicated they would follow the advice given by their health care provider. Strong intention to participate was voiced by more than two thirds of the subjects. The findings indicated that psychological representations (i.e., belief in screening efficacy, perceived salience, and coherence) were strongly and positively associated with participation in annual prostate screening. The most significant findings of this study were intention to screen which was positively associated with the participants beliefs in screening efficacy ($p=.0001$) and receptivity to the health care

professionals influence ($p = .0002$). This study must be viewed with caution, because all of the participants were from one primary care practice in a localized area. Finally, it should be noted that all participants were offered free prostate screening, which removed cost as a potential barrier.

Summary

There is a need to develop strategies to increase the participation in health promotion and cancer screening activities. This is especially critical for the AAM in prostate screening. The goal is to reduce morbidity and mortality associated with PC in this population. Cognitive and perceptual factors such as knowledge of the disease, diagnosis, efficacy of treatment modalities, and perceptions related to self and health care can be influential in health promotion behavior. The providers' enhanced understanding of these factors may allow for the development of educational programs that focus on early detection.

As of this date, little research using the HBM as the conceptual framework has been done in a military setting to evaluate the perceptions, beliefs, and attitudes of males regarding participation in prostate cancer screening. This study utilized the HBM to evaluate the prostate screening practices of male beneficiaries in the NCA.

CHAPTER III: METHODOLOGY

Introduction

The purpose of this research study was to evaluate and describe the knowledge base, health behaviors, and screening patterns of male beneficiaries in the NCA in regards prostate cancer and prostate cancer screening. This study also evaluated and described screening practices among different racial groups of male beneficiaries as they relate to prostate cancer. The research design, sampling and setting, data collection tool and procedure, reliability and validity, protection of human subjects, and plan for data analysis are described in this chapter.

Research Design

A descriptive design was used to gain information about a particular phenomenon. Descriptive designs are used to observe, describe, and document certain aspects of a specific phenomenon. This design can be used to develop theory, identify problems, or to determine what others are doing (Burns & Grove, 1993). In this study, a descriptive design was used to identify the knowledge, screening patterns, and health behaviors of male beneficiaries about prostate cancer and prostate cancer screening. The study also described the subject's perceptions of seriousness, susceptibility, benefits, barriers and self-efficacy. Since there is very little data about screening practices of different male ethnicities in a military setting, this design was appropriate.

Sampling and Setting

To ensure adequate sample size and demonstrate statistical significance, a power analysis was performed. Using a medium effect size of 0.40, a power level of .80, with a significance level of 0.05 two-tailed test, a minimum of 45 participants per racial group

was needed. The goal was to get a convenience sample of 200 male beneficiaries, age 52 and older from different sites (Army, Navy, and Air Force) within the NCA. Fifty-two years of age was selected because 50 is the current recommended age for all males to start screening for prostate cancer. Screening at an earlier age is recommended for males at risk, AAM, and any male with a first-degree relative diagnosed with prostate cancer before 50 years of age. Since screening practices were being evaluated it was decided by the researchers to assess history of past health behaviors, thus the participants needed to be older than the recommended age to begin screening. By selecting age 52, all males should have had at least two to three annual screening exams.

Data Collection Tool and Procedure

A total of 350 questionnaires were distributed at five military commissaries and base or post exchanges in the NCA. The majority of the questionnaires were completed on site and a smaller percentage was given to the respondent with a self-addressed envelope. All questionnaires were examined to ensure completeness and verified to ensure that the inclusion criteria for the study were met. Twenty-six questionnaires were discarded, because too many questions were not answered. Another forty questionnaires were excluded from the final analysis because the respondents were previously diagnosed with prostate cancer. Fifty questionnaires were never returned by mail. The final sample size consisted of 234 questionnaires that were used in the data analysis.

A 58-item questionnaire called Edwards Prostate Cancer Perception Screening Instrument (EPPS) was distributed to all interested participants. This instrument consisted of demographic descriptive data and variables that assessed knowledge; self-efficacy; and perceived threats, barriers, and benefits. These variables formed the

constructs that provided the framework to describe the health behavior of the subjects toward prostate cancer and prostate cancer screening. This study also evaluated the screening patterns of the sample study population and categorized them as frequent screeners, infrequent screeners and non-screeners. The first part of the instrument contained five items on demographic data and 14 items that obtained information about the participant's health status (Questions 1-19). The second part had 12 items that assessed the participant's knowledge about prostate cancer and screening (Part A, Questions 1-12), and 21 items that assessed the constructs of the HBM and self-efficacy (Part B, Questions 13-33). Finally, the last six questions assessed the participant's receptivity to the health care provider (Part B, Questions 34-39). The 12 items, that assessed the participant's knowledge, were scored separately and ranged from 0-12. The items assessing each construct of susceptibility, seriousness, benefits, barriers, and self-efficacy were totaled and divided by the number of items in the construct to obtain a mean score.

Reliability and Validity

This tool was developed and originally used by Edwards (2000) to assess AAM attitudes and beliefs about health, prostate cancer, and prostate cancer screening. This is only the second time this tool has been utilized in a study. According to Burn and Grove (1997), reliability for a new research tool should have a Cronbach's alpha index of reliability coefficient of 0.70 or greater in order to be considered valid. Furthermore, Burns and Grove also stipulate that an established tool should have a Cronbach's alpha index of reliability coefficient of 0.80 or greater.

When the tool was originally developed, a panel of experts including a physician, researchers, and nurses who were experts in prostate cancer and prostate cancer screening reviewed the tool for content validity. A statistical consultant also aided in tool development. After reviewing for content validity, the original tool was modified at the suggestion of the experts. The tool has prior supporting evidence for reliability with a Cronbach's alpha coefficient of 0.88 for the 21-items of the "perception" scale and a Kuder-Richardson's coefficient of 0.73 for the "knowledge" scale. Only Questions 8, 9 and 10 of the knowledge scale were found to be valid. Readability of the EPPS questionnaires was determined to be 92% on the Flesch reading scale at a level of less than the fifth grade.

In this study, the Cronbach's alpha coefficient was 0.91 for the 21-items of the "perception" scale and the Kuder-Richardson's coefficient was 0.77 for the "knowledge" scale. Only Questions 8 and 9 of the knowledge scale were found to be valid.

Protection of Human Rights

This study abided by all guidelines set by the Internal Review Boards (IRB) or Internal Review Committees at Uniformed Services University, and five other military facilities in the National Capital Area (NCA). Since data collection took place outside of the medical facility, additional approval was obtained from the base commanders and directors of the designated commissaries, exchanges, and chapels. The Internal Review Boards and Committees were provided with the following: (1) a letter of request for research, (2) a copy of the research proposal according to institutional guidelines, (3) a copy of the study information sheet, and (4) a copy of the EPPS questionnaire to be used for data collection.

According to procedure, an EPPS questionnaire was distributed to each male beneficiary who qualified. An explanatory letter and instructions for completing the questionnaire were included along with a statement discussing the confidential and voluntary nature of the survey. Completion of the EPPS questionnaire indicated implied consent. All study participants were informed that there were no risks to participate, nor were there any direct benefits. Participants had the choice of completing the questionnaire at the study site or mailing the completed questionnaire with a self-addressed stamped envelope provided by the researchers. There was no identifying information on the questionnaire or envelope ensuring that confidentiality and anonymity were maintained.

Plan for Data Analysis

All data were entered into SPSS 10 for analysis. The analysis was guided by the seven research questions stated in Chapter I. The first six questions pertained to the respondents' knowledge, self-efficacy, perceived benefits, barriers, and threats related to prostate cancer screening methods. Data were examined by computing descriptive statistics including means, medians, modes, standard deviations, and ranges.

Questions 1-6 were answered as follows:

1. What is known about prostate cancer and prostate screening?
(Part A, Questions 1-12)
2. What are the perceived threats concerning screening for prostate cancer?
(Part B, Questions 13, 14, and 15)
3. What are the perceived benefits of a rectal exam as part of the screening for prostate cancer?

(Part B, Questions 16, 18, 24, 26, and 27)

4. What are the perceived benefits of the PSA test in early detection of prostate cancer?

(Part B, Questions 17, 20, 23, 25, and 28)

5. What are the perceived barriers to screening for prostate cancer?

(Part B, Questions 29, 30, 31, 32, and 33)

6. What is the self-efficacy of screening for prostate cancer?

(Part B, Questions 19, 21, and 22)

Inferential statistics using chi-square were conducted to answer Question 7 and to test the research hypothesis.

7. Are there any differences among racial groups (AAM, Caucasian, Hispanic, and Asian) in prostate cancer screening practices?

Hypothesis: There are no significant differences among racial groups in prostate cancer screening practices.

Differences in practices among racial groups were assessed using statistical techniques appropriate to the type of variables being compared. For the comparison of two racial groups in which the dependent variable was categorical (nominal or ordinal) chi-square analysis was applied. All tests were two-tailed and alpha was set at $p=0.05$. The researchers were not able to obtain 45 participants per racial group (Caucasian, African American, Hispanic, and Asian); therefore, only two ethnic groups (Caucasian and African American) were compared for differences.

In addition to responding to the research questions, Question 16 assessed the respondents' participation in other health promotion activities such as cholesterol, blood pressure testing, flex sigmoidoscopy, and dental exams. Answers to Question 16 were

evaluated by descriptive statistics using means, modes, medians, standard deviation, ranges and percentages. These data were evaluated to establish or identify patterns for other health care preventive screening practices and health promotion activities.

CHAPTER IV: RESULTS

Introduction

Prostate cancer is the second leading cause of death in men in the United States, second only to lung cancer (American Cancer Society [ACS], 1999). If detected early, while the tumor is still confined to the organ, the five-year survival rate is 90%. Mortality rates from prostate cancer can be drastically reduced, if participation in preventive screening programs can be increased. The purpose of this research study was to evaluate and describe the knowledge base, perceptions, and screening patterns of male beneficiaries in the NCA in regards to prostate cancer and prostate cancer screening. This study sought to evaluate and describe screening practices among different racial groups of male beneficiaries as it relates to prostate cancer. This study utilized the EPPS questionnaire to obtain comprehensive data about the screening practices of male beneficiaries of the NCA. This chapter provides a description of sample population, data analysis of each research questions, and summary analysis of participation in other health promotion activities.

Sample Characteristics

A total of 350 questionnaires were distributed at five military commissary, base and package exchanges in the NCA. The majority of the questionnaires were completed on site. A smaller percentage were given to the respondent with a self addressed stamped envelope to be completed and returned. All questionnaires were examined to ensure completeness and to see that the inclusion criteria (male, age 52 or older, and a beneficiary of the military health care system) for the study were met. Twenty-six questionnaires were discarded because too many questions were omitted for proper

analysis. Another 40 were excluded from the final analysis because the respondents were previously diagnosed with prostate cancer. Fifty questionnaires were never returned. The final population consisted of 234 questionnaires, which were used for the final analysis.

The researchers personally distributed all questionnaires. Prior to handing out the EPPS questionnaires, the researchers verified that potential candidates were at least 52 years old and were beneficiaries of the military healthcare system. The majority of the respondents (88.5%) were retired military. The rest of the respondents were active duty (3.0%) and reserves (3.0%). Thirteen respondents (5.6%) omitted that question. Ages ranged from 52 to 85, \underline{M} =63.8 years, and \underline{SD} =7.19. Caucasians represented over half of the respondent (53%), followed by African Americans (40.6%). Asians, Hispanics, and those classifying themselves as “Other” were a small percentage of the total population (6.4%). Seventy-five percent of the sample respondents were under the age of 68.

The questionnaire also elicited information about years and levels of education from the study sample population. The majority of the participants 188 (84.3%) had at least some post high school education (Figure 1).

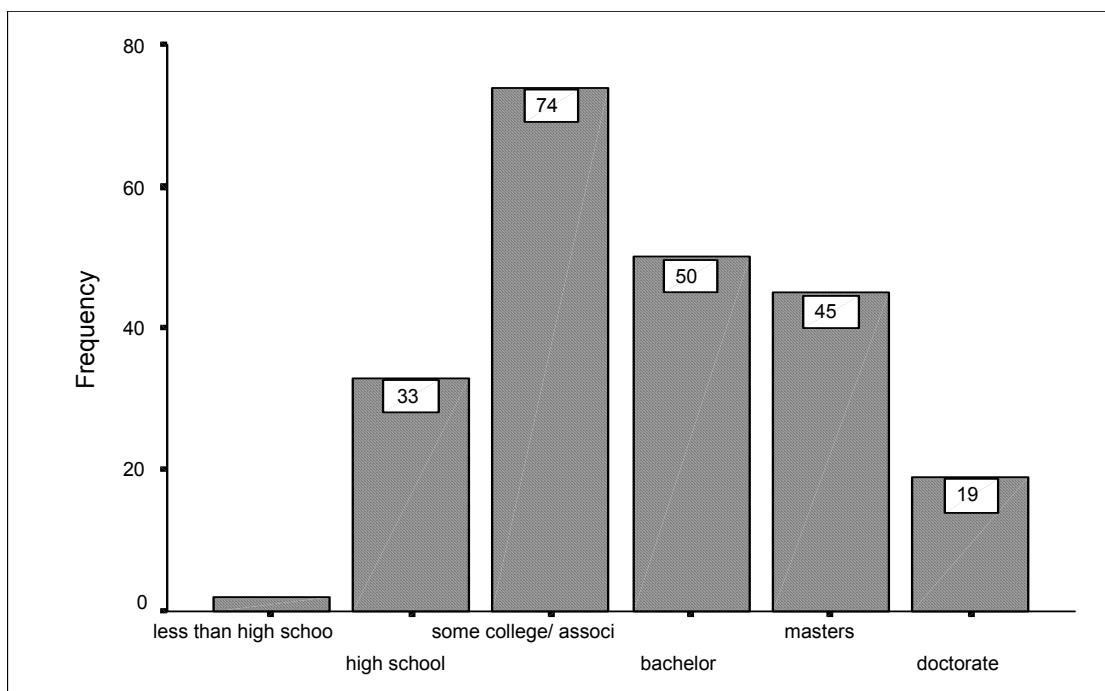


Figure 1
Respondents Education

Marital status was also assessed. One hundred ninety-two (82.1%) were married. Ninety three percent of respondents were from the Army, Navy, or Air Force. The Air Force had the highest percentage (33.8%) of participants in the study (Table 1).

Table 1

Service Branch of Respondents

	Numbers	Percent
Air Force	79	33.8
Army	65	27.8
Navy	59	25.2
Marine corps	8	3.4
Family member	1	.4
Coast Guard	1	.4
Public Health	4	1.7
Unknown	17	7.3
Total	234	100.0

Participants were asked to rate their health status from poor to excellent. Most of the study participants (74%) rated their health status as either good or excellent (Figure 2).

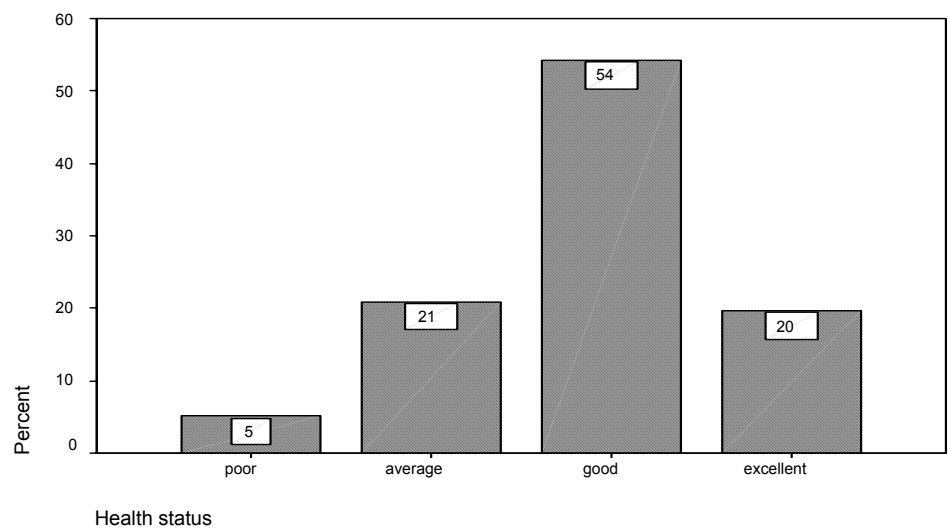


Figure 2
Health Status

Participants were asked to list any current medical problems. These are shown for 206 participants who responded to this question in Table 2.

Table 2

Reported Medical Problems

Medical Problems	Numbers	Percents*
CAD or Dyslipidemia	32	13.7
Hypertension	66	28.2
Diabetes	30	12.8
Kidney Disease	1	0.4
Other Medical Problems	76	32
Unknown	28	12

* Total percentages do not reflect 100% due to multiple responses by participants

The questionnaire also elicited information about when the men had their last physical examination. A total of 197 (88.7%) had their last physical within the past two years (Table 3).

Table 3

Last Physical Examination

Time of Last Physical	Number	Percent
< Than one year	117	50.0
One year	62	26.5
Two years	18	7.7
Three years	7	3.0
Four years	3	1.3
Five years	3	1.3
> 5 years	12	5.1
Unknown	12	5.1
Total	234	100.0

Information was obtained about participation in other preventive screening practices. The respondents were asked to indicate if they had any of the following tests performed in the last five years: cholesterol, blood pressure, rectal exam, flex sigmoidoscopy, and dental exam (see Table 4). Ninety percent reported that they had been screened for cholesterol in the last three years. Ninety-two percent of the men had their blood pressure taken in the last year. One hundred seventy (78%) had a dental exam done within the last year. One hundred sixteen (62%) of the men reported being screened for colorectal cancer via flexsigmoidoscopy within the last five years.

Table 4

Types of Screening Practices

	Cholesterol	Blood Pressure	Blood Test (PSA)	Rectal Exam	Dental Exam	Flexible Sigmoid
Yes	211(90.2%)	225(96.2%)	208(88.9%)	217(92.7%)	206(88%)	153(65.4%)
No	21(9%)	9(3.8%)	22(9.4%)	16(6.8%)	23(9.8%)	73(31.2%)
Unk	2(0.9%)	0	4(1.7%)	1(0.4%)	5(2.1%)	8(3.4%)
Total	234	234	234	234	234	234

The questionnaire queried respondents about their smoking history. Approximately 70% of the respondents reported a history of smoking, but only 14% currently smoked.

In addition to querying about the respondents' health status and participation in screening programs, the men were questioned about any personal or family history of prostate cancer or other cancers (see Table 5). Twenty-eight (12%) had a family history of prostate cancer. Sixty-three men reported that they have a prostate problem with the majority stated they had benign prostatic hyperplasia (BPH).

Table 5

Reported Family History of Cancer

	Numbers	Percent
Father	10	4.3
Brother	7	3.0
Uncle	6	2.6
Cousin	3	1.3
Other	1	.4
>2 relatives	1	.4
No FH	202	86.3
Unknown	4	1.7
Total	234	100.0

In addition to assessing the respondent's health status and participation in screening programs, the men were questioned about whether or not they trusted their health care provider. A majority of the men (89%) reported that they did.

The majority (76%) of the men reported that the most influential person was their health care provider. The second most influential person in advising the men in their health care decisions was their wife (Table 6).

Table 6

Most Important Person Advising on Health Care.

	Number	Percent
my wife	36	15.4
my friends	1	.4
my health care provider	178	76.1
family members other than wife	2	.8
others	10	4.3
wife & health care provider	4	1.7
unknown	3	1.3
Total	234	100.0

The questionnaire also asked men where they obtained their healthcare information. A majority (87%) reported receiving health care information from their health care provider.

The second source of health care advice came from their wives (Table 7). Finally, the questionnaire asked the participants if they would like more information about prostate cancer and two-thirds said they would.

Table 7

Reported Source of Health Care Information

Source of Information	Number of Responses	**Percent
Wife	34	14.5
Friends	8	3.4
TV	24	10.2
Radio	10	4.3
Newspaper	28	11.9
Literature "information"		
Clinics	53	22.7
Physician*	172	73.5
Nurse Practitioner*	15	6.4
PA (Physician Assistants)	16	6.8
Nurses*	5	2.1
Internet/world wide web	14	6.0
Others	19	8.1
Unknown	3	1.3

* Denotes health care providers (physicians, nurse practitioners, physician assistants, and nurses)

** Total percentages do not reflect 100% due to multiple responses by the participants

Research Question One

What is known about prostate cancer and prostate screening?

Knowledge about prostate cancer and prostate cancer screening was assessed in the EPPS questionnaire in which each item of a total of 12 items required a “true” or “false” response. The total number of correct responses ranged from 0-12 ($M=9.51$, $SD=1.57$). Scores were separated into three groups: excellent, average, and poor. An excellent score had at least 10 correct responses, average had at least seven correct responses, and a poor score had fewer than seven correct responses. Over 93% of the men rated average or excellent. Less than 7% of the men were rated as having poor knowledge (Figure 3).

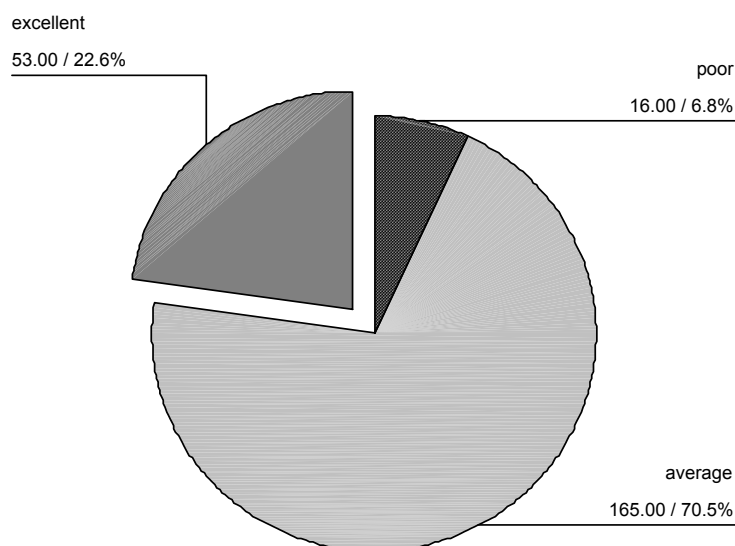


Figure 3
Summary of Knowledge Scores

There were high percentages of incorrect responses noted for Questions 8 and 9 dealing with frequency of screening. Sixty eight percent of respondents had incorrect responses for Question 8 (DRE), and 63% incorrect responses for Question 9 (PSA). Only Questions 8 and 9 were used to form the knowledge construct with a reliability Cronbach's alpha coefficient of 0.77. The majority of the study population appeared to be unsure of when to start screening for prostate cancer. The American Cancer Society recommends annual screening starting at 40 years of age for AAM and first-degree relatives of any race diagnosed with prostate cancer before the age 50. All others should be screened annually starting at age 50 (See Table 8 for a summary of correct responses).

Table 8

Percentage of Correct Responses to Knowledge Questions

Question & Answers	Correct Responses %
1. The most common cause of cancer in men is prostate cancer (T)	84.6
2. A rectal exam is important in checking for prostate cancer (T)	88.9
3. The PSA is a blood test that check for prostate cancer (T)	94.0
4. One can have a prostate cancer and not know it (T)	97.9
5. Prostate cancer can be cured if caught (detected) early (T)	97.0
6. Prostate cancer can be prevented by regular exercise (F)	73.5
7. African-American men have a higher rate of prostate cancer than white men (T)	75.6
8. It is recommended to have a yearly rectal exam beginning at age 60 (F)	31.2
9. You should have a yearly blood test for prostate cancer beginning at age 60 (F)	36.3
10. Test for prostate cancer is needed only when one has symptoms (F)	96.6
11. There is no cure for prostate cancer (F)	86.6
12. The only way to pick up prostate cancer early, when it is more curable, is through an exam (T)	89.3

Research Question Two

What are the perceived threats concerning screening for prostate cancer?

Questions 13, 14, and 15 from Part B of the perception scale formed the “perceived threat” construct, a combination of perceived susceptibility and severity. These questions were scored on a Likert scale ranging from 1(strongly disagree) to 4 (strongly agree). The construct measured the men’s perceived susceptibility towards prostate cancer. Results indicated a $\bar{M}=3.4$, $SD=0.51$, range=1.67 to 4.00, and mode of 4

(strongly agree). The majority of respondents indicated that they did perceive prostate cancer as a threat. A total of 89% (n=209) of the men reported they agreed that prostate cancer was a threat to their health. This construct had a reliability coefficient of 0.70.

Research Question Three

What are the men's perceived benefits of a rectal exam (DRE) as part of the screening for prostate cancer?

Combining Questions 16, 18, 24, 26, and 27 from Part B of the perception scale addressed the “perceived benefits of DRE” construct. These five questions were measured with a Likert scale with scores ranging from 1 (strongly disagree) to 4 (strongly agree). Responses to these questions were combined and averaged. The results indicated a range of 2.2 – 4.0, $\bar{M}=3.5$, $\underline{SD}=0.48$, and a mode of 4.00 (strongly agree). Over ninety percent (n=213) of the men reported that they agreed that the DRE was beneficial in the screening for prostate cancer. This construct had a reliability coefficient of 0.87.

Research Question Four

What are the perceived benefits of the PSA test in early detection of prostate cancer?

Five questions from the perception scale (17, 20, 23, 25, and 28) formed the “perceived benefits of PSA” construct for prostate cancer screening. These five questions utilized a 4-point Likert scale to measure the perceived benefits of the PSA with 1 (strongly disagree) to 4 (strongly agree). Combining the responses for each question and dividing by five obtained a mean “benefit” score. The scores ranged from 2.40 to 4.00, $\bar{M}=3.53$, and $\underline{SD}=0.43$. The most frequent response was strongly agree (n=69). Most men (94.5%) reported that they strongly perceived the PSA test beneficial in screening for prostate cancer. This construct had a reliability coefficient of 0.80.

Research Question Five

What are the perceived barriers to screening for prostate cancer?

The “perceived barrier” construct was evaluated by five questions (23, 30, 31, 32, and 33) in the perception scale. These questions were also measured by a four point Likert scale in which “4” represented strong disagreement. Responses to each question were combined and a mean “barrier” score was computed. Responses ranged from 1.60 to 4.00, $M=3.56$, and $SD=0.60$. The most frequently reported response was “4” (37.2%), which was strong disagreement that there was a barrier to screening for prostate cancer ($n=87$). The majority (94.1%) of the men reported not perceiving a barrier to screening by indicating disagreement ($n=220$). This construct had a reliability coefficient of 0.86.

Research Question Six

What is the self-efficacy of screening for prostate cancer?

The construct for “perceived self-efficacy” was evaluated with three questions from Part B of the perception scale (19, 21, and 22) which was combined to obtain an average response. The majority of respondents had a high perception of self-efficacy in regards to screening for prostate cancer. The scores ranged from 2 to 4 with a $M=3.34$, and a $SD=0.53$ (Table 9). One hundred ninety five (80%) of the men responded by either agreeing or strongly agreeing in their self-efficacy about screening for prostate cancer. This construct had a reliability coefficient of 0.67.

Table 9

Summary Scores of Perception Constructs

Construct	Items # Scores	Range/<u>M</u>	<u>SD</u>
Perceived Threat	13, 14, 15	1.67-4.00/ 3.40	0.51
Perceived Benefits of DRE	16, 18, 24, 26, 27	2.20-4.00/ 3.50	0.48
Perceived Benefits of PSA	17, 20, 23, 25, 28	2.40-4.00/ 3.53	0.43
Perceived Barriers	29, 30, 31, 32, 33	1.60-4.00/ 3.56	0.60
Perceived Self-efficacy	19, 21, 22	2.00-4.00 / 3.34	0.53

Research Question Seven

Are there any differences among racial groups (AAM, Caucasian, Hispanic, and Asian) in prostate cancer screening practices?

Approximately two-thirds of the men ($n=150$) were rated as frequent screeners (annually), 30% were rated as infrequent screeners (2 or more years), and 4% never screened. Due to the small percentage of Asian, Hispanic, and Other respondents, these participants were excluded from the final analysis for Research Question 7, thus Research Question 7 was revised as follows: Are there any differences between Caucasian and African American racial groups in prostate cancer screening practices? Over half (53%) of the men were Caucasian ($n=122$). African Americans comprised 40.6% ($n=93$) of the sample. Statistical analysis using chi-square indicated that there were significant differences among the groups in prostate cancer screening practices ($p=0.010$); therefore,

the null hypothesis was rejected. Significant differences were most notable in infrequent screeners and non-screeners as well as the overall percentage of annual screening.

Approximately 38% of the Caucasian population screened every two or more years (infrequent screeners) compared to only 21% of the African American population. According to ACS, all men should screen for prostate cancer every year starting at age 50. Only 57% of the Caucasian population screened annually (frequent screeners) as 5% compared to approximately 76% of the African American population. Approximately of the Caucasian population never screened for prostate cancer (non-screeners) compared to 2% of the African American population (Figure 4).

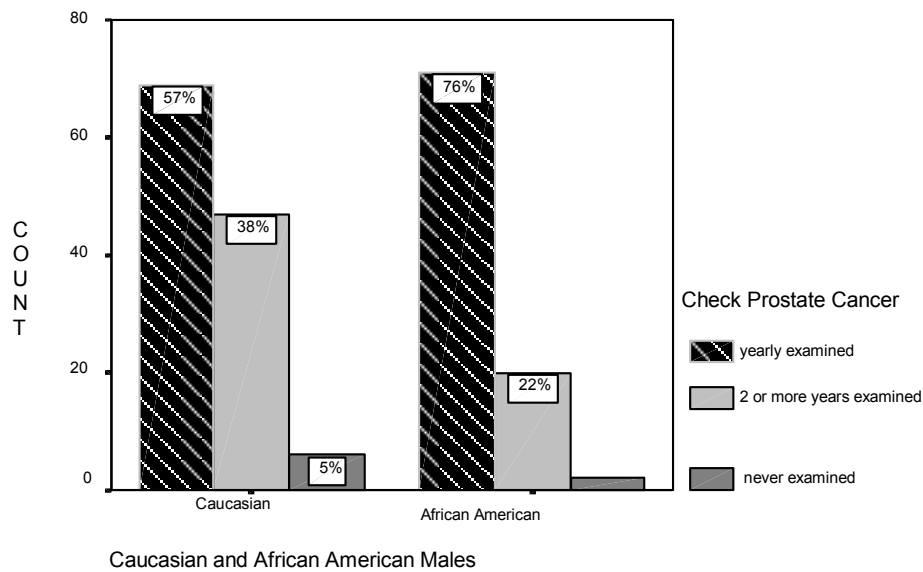


Figure 4
Summary of Prostate Cancer Screening for Caucasian and African American Males

Summary

Over 93% of the men participating in this study were rated as having average or excellent knowledge about prostate cancer. Most men had high self-efficacy, perceived benefits to DRE and PSA screening, and felt susceptible to the disease. Further, most men perceived few barriers to testing or screening. Significant differences in prostate cancer screening practices between the African American and Caucasian men were found with African American men screening more frequently.

CHAPTER V: SUMMARY CONCLUSION AND RECOMMENDATION

Introduction

The purpose of this research study was to analyze and describe the knowledge base, health behaviors, and screening patterns of male beneficiaries in the NCA. This study also sought to evaluate and describe prostate cancer screening practices among different racial groups. This study utilized the Edwards Prostate Cancer Perception Screening Instrument (EPPS) to obtain comprehensive data about the screening practices of male beneficiaries of the NCA. This chapter discusses the research findings, gives possible explanations of results, and makes recommendations for future studies.

The Health Belief Model (HBM) was used in this study because of its ability to explain and predict behaviors of people related to their preventive health practices. The majority of the participants in this study participated in health promotion activities.

Discussion of Research Question One

What is known about prostate cancer and prostate screening?

Knowledge, age, ethnicity, socioeconomic factors, and personality are considered modifying factors that can indirectly influence the behaviors and perceptions (Strecher & Rosenstock, 1997). In this study 93% of the men were knowledgeable about prostate cancer and prostate cancer screening. This finding is consistent with the study conducted by Edwards (2000) in which approximately 90% of that study population was knowledgeable. However, a majority of the men in this study were unsure about when to start screening for prostate cancer. Only 31.2% and 36.3% of the men answered those questions relating to screening initiation correctly. Similar findings regarding knowledge at which age prostate cancer screening should begin were noted in the study conducted by

Price, Colvin and Smith (1994) which found that less than half of the study participants knew what age one should start having prostate examinations.

A study conducted by Abbott, et al.(1998) focusing on the knowledge of prostate cancer, indicated that AAM were less likely to identify early symptoms of prostate cancer. This study did not find differences between AAM and Caucasians in identifying early symptoms of prostate cancer. Two-thirds of the participants said they would like more information about prostate cancer in general.

Discussion of Research Question Two

What are the perceived threats concerning screening for prostate cancer?

The majority of respondents that participated in this study perceive that they were at risk for prostate cancer. This finding is similar to Edward (2000). Though there are higher percentages, this finding is consistent with a study conducted by Colvin and Smith (1993). Greater than 66% of the men surveyed in that study indicated that they would seek attention if they perceived the disease as a serious problem, believed to be susceptible, and saw a benefit to seeking attention.

Eighty six percent of the men reported that they either agree or strongly agree that they were at risk for getting prostate cancer. Furthermore, over 98% of the men reported they felt more at risk as they became older. This information indicated that a majority of the respondents that participated felt they were susceptible to prostate cancer.

Discussion of Research Questions Three and Four

What are the perceived benefits of a rectal exam as part of the screening for prostate cancer?

What are the perceived benefits of the PSA test in early detection of prostate cancer?

Since both of these questions assess benefits of screening, they were combined for discussion. According to Hochbaum (1958), perceived personal benefits of early detection are based on two elements. First, the participants in this study would have to believe that the DRE and PSA would detect prostate cancer prior to appearance of symptoms. Second, they would also have to believe that early detection and treatment would improve their prognosis. The participants in this study perceived high benefits from both PSA and DRE. A majority of the respondents (96%) reported that they agreed. This finding is consistent with a study conducted by Gelfand, Parzuchowski, Cort, and Powell (1995), which indicated that sixty percent of the respondents had a positive attitude toward DRE, while thirty one percent had no opinion.

Another study conducted by Tingen, Weinrich, Heydt, Boyd, and Weinrich (1998) found that responses to their scale could predict participation in the prostate cancer screening. Similar findings were noted in Myers et al.(1996). The limitation of this study does not allow us to predict how this impacts the respondent's screening pattern.

However, Hochbaum (1958) had demonstrated that participation in screening for a disease is strongly associated with two variables: perceived susceptibility and benefits. Further study is needed to confirm the existence of this relationship.

Discussion of Research Question Five

What are the perceived barriers to screening for prostate cancer?

Ninety four percent of the men reported perceiving low barriers to screening by indicating they disagreed with the barrier questions. According to Champion and Scott (1995), an individual would carry out an action as long as the perceived benefits outweigh any barriers of this action. Most barriers identified in the literature regarding prostate

cancer screening, were related to access, cost of the exam, and lack of health insurance.

Since the respondents of this study were all beneficiaries of the military health care system, it is not believed that those issues had as great an impact on these men's screening patterns. Those barriers may have more of an impact in the civilian population.

A study conducted by Meyer et al. (1996) indicated that physical discomfort, embarrassment, and financial cost were potential barriers for 43% of the respondents. When asked if getting a rectal exam or PSA test is easy, the 95% of respondents reported that it was easy to get both tests done. A majority of respondents reported that the rectal exam was painful. Another barrier to screening is fear to abnormal results; however, most of the men in this study denied they would not screen because of the fear of abnormal results. This finding differs from Meyer et al. (1996) which reported that fear of abnormal results was a major concern and barrier for 63% of those surveyed.

Discussion of Research Question Six

What is the self-efficacy of screening for prostate cancer?

Most respondents (80%) had a high confidence in the efficacy of screening for prostate cancer. One of the strengths of the self-efficacy framework is the relationship between modifying health behavior, change, and maintenance. (Stretcher & Rosenstock 1986) Self-efficacy also takes into consideration one's cognitive and motivational ability as well as one's mood or affect. A majority of the respondents in this study agreed with the efficacy of prostate examination. These findings are consistent with Edwards (2000) and Myers et al.(1996). Though the limitations of this study do not make it possible to know what impact the self-efficacy construct had in screening, over 98 % of respondents reported that they were responsible for their own health. Perhaps this responsibility

provided the motivation to screen. Further studies would have to be done to confirm this suspicion.

Discussion of Research Question Seven

Are there any differences among Caucasian and African American racial groups in prostate cancer screening practices?

There was a significant difference in the screening patterns of AAM and Caucasian ($p=0.010$). The AAM screened more frequently than their Caucasian counterparts. The reasons for the differences are not readily apparent. Ninety-two of AAM reported that they were advised by their health care providers to screen for prostate cancer compared to 84% of the Caucasian respondents. Eight percent of the AAM were not advised to screen for prostate cancer compared to 16% of the Caucasian sample. This finding might help explain why the Caucasian respondents did not screen as frequently as the African American population. Approximately 90% of the men reported that their health care providers advised them to get checked for prostate cancer. This may have had an impact on their screening pattern. A study conducted by Demark-Wahnefried et al. (1995) found that health care providers could influence whether a patient participates in screening programs. Likewise, Myers et al. (1996) reported that a health care professional's influence, was significantly associated with intention to screen ($p=0.0002$).

Question 7 of the knowledge scale asked if AAM were at higher risk for prostate cancer compare to Caucasians. The AAM had a higher percent of correct responses on the knowledge test than Caucasians, 90% compared to 77%. A similar finding was noted in Edwards (2000) and Myers, et al. (1996). Contrary findings were reported in studies

conducted by Price, Colvin , and Smith (1993), and Denmark-Wahnefried, et al. (1995). Further studies need to be done to clarify differences in screening patterns.

Conclusion

The findings of this study mirror those of Edwards (2000), see Table 10 for comparison of the studies. Edwards assessed AAM attitudes and beliefs about health, prostate cancer, and prostate cancer screening. A possible explanation for this similarity might be that military respondents are homogeneous in that most were retired and had access to military medical care. All active duty members are required to have a physical exam at least every five years and more frequently for certain specialties such as pilots or hazardous material handlers. A mandatory annual dental exam is required for all active duty members. Mandatory screenings in the past may have served as a template for current screening practices of the study participants. In addition, access to care, cost, and health insurance are probably not significant barriers to care as compared to the civilian population. The participants in this study were very trusting of their health care providers who appeared to significantly influence their health care behavior. Overall, the respondents in this study were very knowledgeable about prostate cancer and prostate cancer screening.

Table 10

Comparison of Study Findings to Edwards (2000)

Construct	Moore & Boyle (2002)		Edwards (2000)	
	Ranges/ <u>M</u> Scores	<u>SD</u>	Range/ <u>M</u> Scores	<u>SD</u>
Perceived threat	1.67-4.00/ 3.40	0.51	1-4/ 3.6	0.50
Perceived Benefits of DRE	2.20-4.00/ 3.50	0.48	1.2-4/ 3.47	0.54
Perceived Benefits of PSA	2.40-4.00/ 3.53	0.43	2-4/ 3.60	0.44
Perceived Barriers	1.60-4.00/ 3.56	0.60	1-4/ 3.42	0.58
Perceived Self-efficacy	2.00-4.00/ 3.34	0.53	1-4/ 3.42	0.57

The majority of the subjects in this study were advised by their health care provider to be screened for prostate cancer, felt susceptible to prostate cancer, and believed that the DRE and PSA were efficacious. Advice from the health care provider has a significant impact in participation of preventive health screening (Myers, et al., 1996). The benefits of screening outweighed barriers the men may have encountered. The majority of these men acknowledged that they were responsible for their own individual health. Even though the participants stated that the DRE was painful, the majority of the men continued to screen. Contrary to studies of civilian populations, this study found that African American males screened for prostate cancer more frequently than Caucasian males.

Significant Findings

The majority (96%) of the participants trusted their health care provider. Three quarters of them reported that the most important person to advise them on their health care matters was their health care provider. The majority of these men did not know when to start screening for prostate cancer. These respondents participated in other

preventive health care screening in addition to prostate cancer. There were significant differences noted in the frequency in the screening patterns between AAM and Caucasians. This difference may partially be due to fact that AAM started screening at an earlier age as they were recommended to do 10 years earlier, or because AAM felt that they were in a higher risk group for prostate cancer. This issue needs to address in future studies.

Generalization of Study

This study can be generalized to the military population; however, due to the uniqueness of the military population, this study cannot to generalized to large non-military populations. Also, the racial and ethnic characteristics of respondents were not representative of the population as a whole.

Implications for Practice

Health care providers need to establish a trusting relationship with their patients. With a trusting relationship, men can be educated about the risk of developing prostate cancer and the benefits of frequent screening. Men need to be sufficiently comfortable with their health care providers to discuss fears or barriers that may prevent them from participating in screening. Barriers cannot be removed or reduced if they are not identified. Educators need to ensure that men know when to start screening for prostate cancer. In this study, three-fourths of the respondents did not know when screening should start. Health care providers need to empower men to take responsibility for their individual health.

Recommendations for Future Research

This study needs to be repeated using a qualitative approach. A qualitative study design could be beneficial in explaining and giving meaning to the data. More studies with larger and more diverse samples may help attain meaningful generalizations about prostate cancer screening practices in the military population. Evaluation of health care providers' beliefs about prostate cancer screening needs to be investigated further. This study also needs to be repeated in which the sample would include non-military men in order to determine if other factors, not found among military men, influence the frequency of screening.

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APPENDIX A

MEN'S HEALTH CARE QUESTIONNAIRE***Prostate Cancer and Screening***

This questionnaire is a research study about health, prostate cancer and testing for prostate cancer. It has been developed so you can provide information on what you know and believe about prostate cancer. The information you provide may be helpful in developing educational programs for men on prostate cancer. In addition to questions about prostate cancer, personal issues will also be asked. The questions that ask about your background will only be used to describe information about all of the men who complete the questionnaire. The information will NOT be used to find out your name.

DO NOT WRITE YOUR NAME ON THE QUESTIONNAIRE. COMPLETING THE QUESTIONNAIRE IS VOLUNTARY. WHETHER OR NOT YOU WANT TO ANSWER THE QUESTIONS WILL NOT AFFECT YOU. YOU CAN STOP THE QUESTIONNAIRE AT ANY TIME. ANSWERING THE QUESTIONS GIVES YOUR CONSENT (OK) TO BE IN THE STUDY.

WHAT IS YOUR AGE:

Please **CHECK** the Response that **BEST** describes you and your history:

1. RACE:

- ☐ 1. CAUCASIAN/WHITE
- ☐ 2. AFRICAN AMERICAN/BLACK
- ☐ 3. ASIAN
- ☐ 4. HISPANIC
- ☐ 5. OTHER (please name) _____

2. EDUCATION:

Years education _____

- ☐ LESS THAN HIGH SCHOOL
- ☐ HIGH SCHOOL
- ☐ SOME COLLEGE/ASSOCIATE'S DEGREE
- ☐ BACHELOR'S DEGREE
- ☐ MASTER'S DEGREE
- ☐ DOCTORATE DEGREE

3. MARITAL STATUS:

- ☐ 1. MARRIED
- ☐ 2. DIVORCED
- ☐ 3. WIDOWED
- ☐ 4. SEPARATED
- ☐ 5. SINGLE

4. MILITARY STATUS:

- ☐ 1. ACTIVE DUTY
- ☐ 2. RESERVE/GUARD
- ☐ 3. RETIRED

5. SERVICE BRANCH

- ☐ 1. AIR FORCE
- ☐ 2. ARMY
- ☐ 3. NAVY
- ☐ 4. MARINES
- ☐ 5. FAMILY MEMBER
(of Active or Retired)

HEALTH CARE STATUS:**6. HOW WOULD YOU RATE YOUR HEALTH?**

- ☐ 1. POOR —(Please Explain) _____
- ☐ 2. AVERAGE
- ☐ 3. GOOD
- ☐ 4. EXCELLENT

Please Continue on the Next Page

7. ARE YOU BEING TREATED FOR ANY MEDICAL PROBLEM? IF SO WHAT?**Explain:** _____**8. WHEN WAS THE LAST TIME YOU HAD A COMPLETE PHYSICAL EXAM?** _____**9. HAVE YOU EVER HAD A RECTAL EXAM DONE BY A HEALTH CARE PROVIDER?**

- ☐ YES (When and for What Reason) _____
- ☐ NO

10. HAVE YOU EVER HAD A BLOOD TEST DONE FOR PROSTATE CANCER?

- ☐ YES (When was the Last time) _____
- ☐ NO

11. HAVE YOU EVER BEEN TOLD YOU HAVE A PROSTATE PROBLEM?

- ☐ YES (Explain) _____
- ☐ NO

12. HAVE YOU EVER BEEN TOLD YOU HAD CANCER?

- ☐ YES (What type) _____
- ☐ NO

13. DO YOU HAVE A BLOOD RELATIVE WITH PROSTATE CANCER? ☐ YES ☐ NO**14. IF YES, WHO IN YOUR FAMILY, HAS PROSTATE CANCER?**

- ☐ 1. GRANDFATHER
- ☐ 2. FATHER
- ☐ 3. BROTHER
- ☐ 4. SON
- ☐ 5. UNCLE
- ☐ 6. COUSIN
- ☐ 7. OTHER (Explain) _____

16. CHECK ALL THE TESTS THAT YOU HAVE HAD DONE AND NOTE THE LAST TIME:

- | | |
|--|---------------------|
| <input type="checkbox"/> 1. CHOLESTEROL | LAST CHECKED: _____ |
| <input type="checkbox"/> 2. BLOOD PRESSURE | LAST CHECKED: _____ |
| <input type="checkbox"/> 3. BLOOD TEST (PSA) | LAST CHECKED: _____ |
| <input type="checkbox"/> 4. RECTAL EXAM | LAST CHECKED: _____ |
| <input type="checkbox"/> 5. FLEX SIGMOIDOSCOPY | LAST CHECKED: _____ |
| (Check for Colon Cancer) | |
| <input type="checkbox"/> 6. DENTAL EXAM | LAST CHECKED: _____ |

17. HAVE YOU EVER SMOKED OR USED TOBACCO PRODUCTS? ☐ YES ☐ NO**18. DO YOU PRESENTLY SMOKE OR USE TOBACCO PRODUCTS?** ☐ YES ☐ NO**18a. IF YES (to above) HOW MUCH?** _____ **HOW LONG?** _____**19. CHECK THE BLOCK THAT BEST DESCRIBES HOW OFTEN YOU GET CHECKED FOR PROSTATE CANCER:**☐ YEARLY
EXAMINED☐ 2 OR MORE YEARS
EXAMINED☐ NEVER
EXAMINED

PART A.
WHAT DO YOU KNOW ABOUT PROSTATE CANCER & SCREENING?

CHECK THE ANSWER THAT BEST DESCRIBES WHAT YOU KNOW ABOUT PROSTATE CANCER:

1. THE MOST COMMON CAUSE OF CANCER IN MEN IS PROSTATE CANCER
☐ TRUE ☐ FALSE
2. A RECTAL EXAM IS IMPORTANT IN CHECKING FOR PROSTATE CANCER
☐ TRUE ☐ FALSE
3. THE "PSA" IS A BLOOD TEST THAT CAN CHECK FOR PROSTATE CANCER
☐ TRUE ☐ FALSE
4. ONE CAN HAVE PROSTATE CANCER AND NOT KNOW IT
☐ TRUE ☐ FALSE
5. PROSTATE CANCER CAN BE CURED IF CAUGHT (DETECTED) EARLY
☐ TRUE ☐ FALSE
6. PROSTATE CANCER CAN BE PREVENTED BY REGULAR EXERCISE
☐ TRUE ☐ FALSE
7. AFRICAN AMERICAN MEN (BLACKS) HAVE A HIGHER RATE OF PROSTATE CANCER THAN WHITES
☐ TRUE ☐ FALSE
8. IT IS RECOMMENDED TO HAVE A YEARLY RECTAL EXAM BEGINNING AT AGE 60
☐ TRUE ☐ FALSE
9. I SHOULD HAVE A YEARLY BLOOD TEST FOR PROSTATE CANCER STARTING AT AGE 60
☐ TRUE ☐ FALSE
10. TESTS FOR PROSTATE CANCER IS NEEDED ONLY WHEN ONE HAS SYMPTOMS OR PROBLEMS
☐ TRUE ☐ FALSE
11. THERE IS NO CURE FOR PROSTATE CANCER
☐ TRUE ☐ FALSE
12. THE ONLY WAY TO PICK UP PROSTATE CANCER EARLY, WHEN IT IS MORE CURABLE, IS THROUGH AN EXAM
☐ TRUE ☐ FALSE

Please Continue on the Next Page. Thank You



PART B.
HOW DO YOU FEEL ABOUT PROSTATE CANCER & TESTING?

CHECK THE BLOCK THAT BEST DESCRIBES HOW YOU FEEL:

13. I feel like I should get a Prostate Cancer Check:
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
14. I am at risk for getting Prostate Cancer:
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
15. I should have a blood test done for Prostate Cancer
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
16. As I get older, I am more at risk for Prostate Cancer;
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
17. Black men have a higher rate of Prostate Cancer than Whites
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
18. I should have a rectal exam done for Prostate Cancer
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
19. I feel like I can stay healthy by taking care of myself
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
20. If I follow my health care provider's advice, I can best take care of my health
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
21. I feel like I have control over my body
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
22. I am responsible for my health
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
23. I believe that having a blood test for Prostate Cancer is safe
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
24. I believe that having a rectal exam for Prostate Cancer is safe
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
25. I Trust that getting a blood test will be helpful in detecting Prostate Cancer
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
26. I Trust that getting a rectal exam will be helpful in detecting Prostate Cancer
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
27. I believe that getting a rectal exam for Prostate Cancer is Easy
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
28. I feel that getting a blood test for Prostate Cancer is Easy
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE

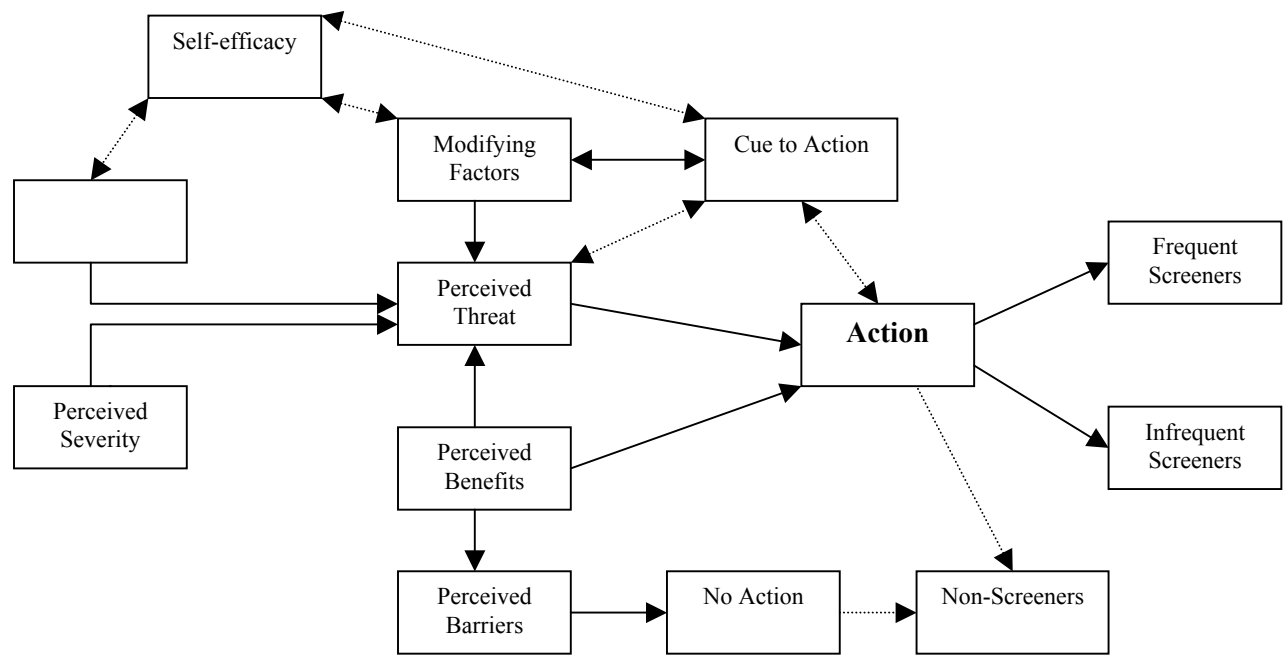
Please Continue on the Next Page

29. I would not have a rectal exam done because it is Painful.
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
30. I am afraid to be checked for Prostate Cancer because I am afraid of the results
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
31. I feel that any test for Prostate Cancer is useless because there's no cure
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
32. I do not get checked for Prostate Cancer because it is embarrassing
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
33. I do not get checked for prostate cancer because if it is found and treated, I may be unable to have Sex (penile erection)
☐ STRONGLY AGREE ☐ AGREE ☐ DISAGREE ☐ STRONGLY DISAGREE
-
34. MY HEALTH CARE PROVIDER HAS ADVISED ME TO GET CHECKED FOR PROSTATE CANCER ☐ TRUE ☐ FALSE
35. IF TRUE, HOW OFTEN? _____
36. I TRUST THE HEALTH CARE PROVIDERS IN THE CARE OF MY HEALTH
☐ TRUE ☐ FALSE
37. THE MOST IMPORTANT PERSON TO ADVISE ME ON MY HEALTH CARE IS:
- ☐ 1. MY WIFE
☐ 2. MY FRIENDS
☐ 3. MY HEALTH CARE PROVIDER
☐ 4. FAMILY MEMBERS OTHER THAN MY WIFE
☐ 5. OTHERS
(Specify) _____
38. I GET MOST OF THE INFORMATION ABOUT HEALTH CARE FROM:
- ☐ 1. MY WIFE
☐ 2. MY FRIENDS
☐ 3. TV
☐ 4. RADIO
☐ 5. NEWSPAPER
☐ 6. LITERATURE "INFORMATION" I FIND IN THE CLINICS
☐ 7. PHYSICIAN
☐ 8. NURSE PRACTITIONER
☐ 9. PA (PHYSICIAN ASSISTANTS)
☐ 10. NURSES
☐ 11. INTERNET/WORLD WIDE WEB
☐ 12. OTHERS (Explain) _____
39. WOULD YOU LIKE TO KNOW MORE ABOUT PROSTATE CANCER?
(Check only one)

☐ YES☐ NO

Appendix B

Theoretical Map



Modifying Factors
Knowledge
Age
Ethnicity
Socioeconomic
Personality

Cues to Action
Education
Symptoms of Disease
Media Information
Promotion Awareness
Health Fairs

Appendix C

Study Information Sheet

You have been asked to voluntarily participate in a **research project** entitled, **“Assessing the Knowledge, Self-Efficacy and Health Behaviors of Male Beneficiaries Assigned to the National Capital Area regarding their Participation in Prostate Screening.”** This study will be conducted at selected Army, Navy, and Air Force commissaries, post/base exchanges, and chapels in the National Capital Area.

The **purpose of this research project** is to explore what male beneficiaries in the National Capital Area know and feel about prostate cancer and prostate cancer screening. We hope to identify concerns or issues that may influence male beneficiary’s participation in prostate cancer screening. Studies have indicated that there are disparities in screening patterns between African American and Caucasian males in the civilian sector. Whether this is true for men in the military is not yet known. No studies to date have looked at screening patterns of all races in the military setting. The results of this study may give insight about current patterns of male beneficiaries in the National Capital Area. We need a minimum of 200 participants, ages 52 and older, to participate in this study by filling out a questionnaire.

Your participation in this research project will require less than 45 minutes to complete a questionnaire.

You will **not** be required to provide any personal information such as name, address, employment, or social security number that could identify you. You will be completely anonymous to the researchers.

There are no expected risks associated with your participation in the study. The only inconvenience will be the time required completing the questionnaire.

This research may or may not help you personally, but the results may help the investigators learn about screening pattern of male beneficiaries concerning prostate cancer screening. The information gained will be helpful in providing guidance to the researchers in developing educational

programs to encourage male beneficiaries to participate regularly in prostate cancer screening. This could, in turn, help increase early detection of prostate cancer.

There is no cost to you if you choose to participate in this project. You will be provided with a self-addressed stamped envelope if you choose to complete the questionnaire at home.

While we hope that you will answer all the questions on the questionnaire to the best of your ability, you may decide to stop taking part in this study at any time or not answer any question that makes you uncomfortable. Please note that the investigators may also terminate your participation in this project if they feel it necessary for your safety or health, or if you choose not to follow their directions. However, your withdrawal from the project will not cause you to lose any benefits to which you are otherwise entitled.

In all publications and presentations resulting from this research project, your anonymity will be protected to the maximum extent possible. Authorized personnel from the Institutional Review Board of the Uniformed Services University of Health Sciences (USUHS) may have access to the research file in order to verify that your rights and anonymity have been safeguarded.

If you have any questions regarding this research project, you may contact Lieutenant Commander Gerald Boyle, U.S. Navy, or Captain Angelo Moore, U.S. Army, at (301) 295-1001. If you have any questions about your rights as a research participant, you should call the Director of Research Programs in the USUHS Office of Research at (301) 295-3303. This person is your representative and has no connection to the researchers conducting the study.

We greatly appreciate your willingness to participate in this research project.

Gerald Boyle
LCDR, NC, USN
Graduate School of Nursing

Angelo Moore
CPT, AN, USA
Graduate School of Nursing

APPENDIX D

Angelo Moore

From: <QUINOGNP@aol.com> To: <African11@aol.com> Sent: Thursday, October 05, 2000 11:31 PM

Subject: Re: Special Request

Thank you for your interest in my research instrument that was used as part of a study titled "Differentiation of the Health Behavior Practices of Prostate Cancer Screening among African-American Men in Military Communities". The tool has been tested to be valid and reliable for assessing data pertaining to prostate cancer screening behaviors. In addition the instrument also assesses descriptive data pertaining to overall health, several health behavior screening practices, and resources and support system's that individuals feel may impact their health behavior practices. The tool was derived from the Health Belief Model and assesses data pertaining to perceptions of SERIOUSNESS, SUSCEPTIBILITY (THREAT), BENEFITS, BARRIERS, and SELF-EFFICACY. In addition, the tool also assesses a knowledge component. I will be happy to serve as a member of your thesis committee. Also, I give your group permission to utilize the instrument for

your thesis. Hopefully, the data that you retrieve might be also useful in comparing and contrasting past data obtained from my prior studies. If you have any questions please feel free to contact me at 757-764-9602 (work) Good luck in your future study and I will be sending you a copy of a data file from SPSS to use as a guide for your study. In addition, I will be in the D.C area approx 16 Oct 00.

Signed,

Colonel Quannetta T. Edwards, BSN, MS, MSN, DNSc

APPENDIX E
IRB APPROVALS



UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES
F. EDWARD HEBERT SCHOOL OF MEDICINE
 4301 JONES BRIDGE ROAD
 BETHESDA, MARYLAND 20814-4799



June 7, 2001

MEMORANDUM FOR LCDR GERALD BOYLE & CPT ANGELO MOORE, GRADUATE
 SCHOOL OF NURSING

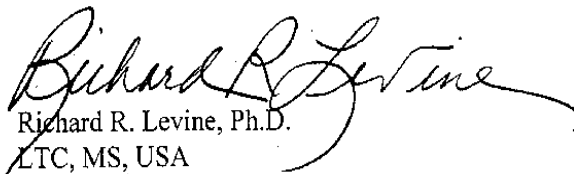
SUBJECT: IRB Approval of Human Research Protocol T061CP-01

Your research protocol entitled "*Assessing the Knowledge, Self-Efficacy and Health Behaviors of Male Beneficiaries Assigned to the National Capital Area Regarding Participation in Prostate Screening*" was reviewed and approved for execution on 6/6/2001 as an **exempt** human research study under the provisions of 32 CFR 219.101(2)(b)(2). This approval will be reported to the full IRB scheduled to meet on 12 July 2001.

The purpose of this study is to describe the knowledge base, perceived threats, benefits, barriers, and self-efficacy of prostate cancer screening behaviors of male beneficiaries in the National Capital Area (NCA). The USUHS IRB understands that this study will utilize a 58-item questionnaire distributed to a convenience sample of up to 200 males beneficiaries at post/base commissaries, exchanges, and chapels in the NCA. The IRB further understands that respondents that no names or other personal identifiers will be collected on the questionnaire.

- You are required to provide this office with copies of all protocols, consent forms and approval memos from all IRBs and secondary reviewers reviewing your research project prior to the start of data collection at a given site. Additionally, please provide us with approval memos, as required, from all post/base commanders and commissary/exchange/chapel and/or other officials reviewing your research project prior to data collection at an individual study site.

Please notify this office of any amendments you wish to propose and of any untoward incidents that may occur in the conduct of this project. If you have any questions regarding human volunteers, please call me at 301-295-3303 or contact me at rlevine@usuhs.mil.


 Richard R. Levine, Ph.D.
 LTC, MS, USA
 Director, Research Programs and
 Executive Secretary, IRB

cc: Director, Research Administration

OMB No. 0925-0418
Approved for use through 01/31/2001

**Protection of Human Subjects
Assurance Identification/Certification/Declaration
(Common Federal Rule)**

Policy: Research activities involving human subjects may not be conducted or supported by the Departments and Agencies adopting the Common Rule (56FR28003, June 18, 1991) unless the activities are exempt from or approved in accordance with the common rule. See section 101(b) the common rule for exemptions. Institutions submitting applications or proposals for support must submit certification or appropriate Institutional Review Board (IRB) review and approval to the Department or Agency in accordance with the common rule.

Institutions with an assurance of compliance that covers the research to be conducted on file with the Department, Agency, or the Department of Health and Human Services (HHS) should submit certification of IRB review and approval with each application or proposal unless otherwise advised by the Department or Agency. Institutions which do not have such an assurance must submit an assurance and certification of IRB review and approval within 30 days of a written request from the Department or Agency.

1. Request Type <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> FOLLOWUP <input type="checkbox"/> EXEMPTION	2. Type of Mechanism <input type="checkbox"/> GRANT <input type="checkbox"/> CONTRACT <input type="checkbox"/> FELLOWSHIP <input type="checkbox"/> COOPERATIVE AGREEMENT <input checked="" type="checkbox"/> OTHER: Independent Study	3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No. FMG2001-0011E
4. Title of Application or Activity See Item #8		LCDR Boyle

6. Assurance Status of this Project (Respond to one of the following)


- ☐ This Assurance, on file with Department of Health and Human Services, covers this activity.
Assurance identification no. M- IRB identification no. _____
- ☐ This Assurance, on file with (agency/dept) the Department of Defense covers this activity.
Assurance identification no. MPA IRB identification no. 5006 (if applicable)
- ☐ No assurance has been filed for this project. This institution declares that it will provide an Assurance and Certification of IRB review and approval upon request.
- ☒ Exemption Status: Human subjects are involved, but this activity qualifies for exemption under Section 101(b), para CFR 219.101 (b) (5) Public Behavior Survey

7. Certification of IRB Review (Respond to one of the following IF you have an Assurance on file)

- ☒ This activity has been reviewed and approved by the IRB in accordance with the common rule and any other governing regulations or subparts on 11 July 2001 by: ☐ Full IRB Review or ☐ Expedited Review
- ☐ This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by the common rule will be reviewed and approved before they are initiated and that appropriate further certification will be submitted.

8. Comments:

Assessing the Knowledge, Self-Efficacy and Health Behaviors of Male Beneficiaries assigned to the National Capital Area regarding Male Beneficiaries in Prostate Screening

9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed and certification will be provided.		10. Name and Address of Institution 89 MDG/SGAT 1050 West Perimeter Road Andrews AFB MD 20762	
11. Phone No. (with area code) (240) 857-6062	12. Fax No. (with area code) (240) 857-4093		
DIVINA D. JONES, TSgt		14. Title IRB Coordinator	
15. Signature 		16. Date 20 July 2001	

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OPTIONAL FORM 310 (Rev. 1-98)
Sponsored by HHS/NIH

MCWR-GC

15 June 2001

MEMORANDUM FOR Angelo Moore, AN and Gerald Boyle, NC, Family Nurse
Practitioner Students, Graduate School of Nursing,
Uniformed Services University of the Health Sciences,
Bethesda, MD.

Subject: Letter of Institutional Support

1. It is with great pleasure that I offer my support for your proposed research study entitled "Assessing the Knowledge, Self-efficacy, and Health Behaviors of Male Beneficiaries Assigned to the National Capital Area Regarding Participation in Prostate Cancer Screening." Your study is designed to describe the knowledge, perceived threats, benefits, barriers, and self-efficacy of participation in prostate screening.
2. I understand that this research project will be used to enhance primary providers' understanding of factors that prevent or influence prostate screening. I also understand this research project will be used to facilitate the development of educational programs that focuses on early detection and ultimately improving survival and quality of life. The findings from this study have DoD-wide implications.
3. I understand that participants, who volunteer, will be given the opportunity to complete the questionnaire on site or return by mail using a self-addressed stamped envelope provided to them in front of the exchange, commissary, or chapel.
4. I fully support this research proposal to assist in your graduate studies.
5. POC is Dr./LTC (Ret) Janice Agazio (301) 295-1001.



RANDLE L. TREIBER
COL, MS
Garrison Commander

Return-Path: <MiskowskiVL@navair.navy.mil>
 Received: from rly-ye05.mx.aol.com (rly-ye05.mail.aol.com [172.18.151.202]) by air-ye03.mail.aol.com (v78_r3.8) with ESMTTP; Wed, 27 Jun 2001 09:59:47 -0400
 Received: from patty.nawcad.navy.mil (patty.nawcad.navy.mil [192.58.199.180]) by rly-ye05.mx.aol.com (v79.20) with ESMTTP id MAILRELAYINYE54-0627095937; Wed, 27 Jun 2001 09:59:37 -0400
 Received: by patty.nawcad.navy.mil; id JAA15687; Wed, 27 Jun 2001 09:59:35 -0400 (EDT)
 Received: from neim02.nawcad.navy.mil (140.229.37.205) by patty.nawcad.navy.mil via smap (V4.2) id xma015091; Wed, 27 Jun 01 09:59:15 -0400
 Received: by neim02.nawcad.navy.mil with Internet Mail Service (5.5.2653.19) id <N4VKBATK>; Wed, 27 Jun 2001 09:59:14 -0400
 Message-ID: <E064CE051B3DD311A9460000F81AFCEF08495732@nems03.navair.navy.mil>
 From: "Miskowski, Veronica L" <MiskowskiVL@navair.navy.mil>
 To: "'gboyle@usuhs.mil'" <gboyle@usuhs.mil>, "'african11@aol.com'" <african11@aol.com>
 Subject: APPROVAL
 Date: Wed, 27 Jun 2001 09:59:49 -0400
 Return-Receipt-To: "Miskowski, Veronica L" <MiskowskiVL@navair.navy.mil>
 MIME-Version: 1.0
 X-Mailer: Internet Mail Service (5.5.2653.19)
 Content-Type: text/plain; charset="ISO-8859-1"

LCDR Boyle,
 Capt Hovatter has approved your request to pass out your questionnaire at the Commissary and the Exchange. I will let them know you will be doing it, however you need to let me know when you are going to be handing them out.
 v/r
 Veronica

Veronica L. Miskowski
 Commanding Officer's Office
 miskowskivl@navair.navy.mil
 301-342-1018
 FAX: 301-342-3537

<<...OLE_Obj...>>



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT MYER
204 LEE AVENUE
FORT MYER, VIRGINIA 22211-1199

ANMY-PE


24 Aug 01

MEMORANDUM FOR Lieutenant Commander Gerald Boyle, NC, and Captain Angelo Moore,
AN, Family Nurse Practitioner Students, Graduate School of Nursing, Uniformed Services
University of Health Sciences, Bethesda, Maryland

SUBJECT: Research Questionnaire Distribution at the Exchange and Commissary

1. Your request is approved to distribute questionnaires at the Fort Myer Commissary and Exchange in support of your research project, "Assessing the Knowledge, Self-efficacy, and Health Behaviors of Male Beneficiaries Assigned to the National Capital Area Regarding Participation in Prostate Cancer Screening." You may coordinate dates and set-up arrangements with the Commissary and Exchange managers to ensure your project is inobtrusive to store operations.
2. We understand that participants in the survey will be anonymous, and no effort will be made to identify individuals or maintain records of any information which can be connected to an individual participant. You must ensure compliance with all Privacy Act rules, including having each participant sign a Privacy Act statement.
3. This approval expires 30 Nov 01.
4. Point of contact for this correspondence is Mr. David Haarberg, Administrative Officer, at (703) 696-3110, or email: haarbergd@fmnc.army.mil.

FOR THE COMMANDER:


EDWARD F. GONZALES
Director, Personnel and
Community Activities

From: "Angelo Moore" <lewismoe1@earthlink.net>
To: "Angelo Moore" <anmoore@usuhs.mil>, <African11@aol.com>, "Gerald Boyle" <gboyle@usuhs.mil>
Date: 8/29/01 1:45PM
Subject: Fw: Questionnaire Distribution Information

A copy for you.

Angelo

----- Original Message -----

From: "Martin, Ursula" <martinu@emh1.ftmeade.army.mil>
 To: "Angelo Moore" <lewismoe1@earthlink.net>
 Sent: Tuesday, August 28, 2001 3:15 PM
 Subject: RE: Questionnaire Distribution Information

> I have checked with the Fort Meade PX management office and the commissary
 > and got their approval for you to conduct your survey by passing out the
 > questionnaire. I would advise you, however, to let them know a few days
 > prior of the exact day and time you will be out there. If you should run
 > into any unexpected problems, please let me know. If I can be of any
 > further assistance, please call me at 301-677-5502.

>
 > Ursula Martin
 > Community Operations Div
 > 301-677-5502

>
 > -----Original Message-----
 > From: Angelo Moore [mailto:lewismoe1@earthlink.net]
 > Sent: Thursday, August 23, 2001 2:56 PM
 > To: martinu@emh1.ftmeade.army.mil
 > Subject: Questionnaire Distribution Information

>
 >
 > Ms. Martin:
 >
 > Here is the information Mr. Macklin requested per our telephone
 > conversation. Please do not hesitate to email with any questions.

>
 > CPT Angelo Moore
 > lewismoe1@earthlink.net <mailto:lewismoe1@earthlink.net>
 > or
 > anmoore@usuhs.mil <mailto:anmoore@usuhs.mil>
 >
 >